



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/630,544 | 07/29/2003 | Tongbi Jiang | 303.343US7 | 7498 |
| 21186 | 7590 | 12/12/2006 | EXAMINER | |
| SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402 | | | LAMB, BRENDA A | |
| | | ART UNIT | PAPER NUMBER | |
| | | 1734 | | |

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|----------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/630,544 | JIANG ET AL. |
| | Examiner Brenda A. Lamb | Art Unit 1734 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 21 September 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 9-14 and 40-52 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 9-14 and 40-52 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>9/21/2006</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 9-12, 41 and 43 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 and 8-11 of copending Application No. 10/643,567 (Jiang et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because Jiang et al 10/643,567 claims a semiconductor die stencil having a top surface, a bottom surface and one or more side surfaces, the bottom surface having a surface tension less than a surface tension of the top surface and less than a surface tension of the side surfaces. With respect to claims 10-12, the above cited application claims the first surface is a bottom surface and the second surface is a top surface. With respect to claims 41 and 43, Jiang et al 10/643,567 claims the bottom surface is a polymeric material.

Claims 46-49 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 8-11 of copending Application No. 10/643,567 (Jiang et al) in view of Hefele.

Jiang et al 10/643,567 are applied to reasons for the reasons and claims the sheet of material is impervious to the printable material but fails to claim the sheet of material is stainless steel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the sheet of material from stainless steel, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice and, in any event, it is known to construct the base material of the stencil from stainless steel as taught by Hefele. In re Leshin, 125 USPQ 416. With respect to claim 47-48, the modified Jiang et al 10/643,567 inherently having a surface tension within the scope of the claims. Jiang et al 10/643,567 claims the coating is a polymeric material.

This is a provisional obviousness-type double patenting rejection.

Claims 9, 14, 40, 41, 44, 45 and 50-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/701,140. Although the conflicting claims are not identical, they are not patentably distinct from each other because Jiang et al claims a stencil having a top surface, a bottom surface and one or more side surfaces, the bottom surface having a surface tension less than a surface tension of the top surface and less than a surface tension of the side surfaces. With respect to claims 14, 40, 41, 44, 45 and 50-52, Jiang et al 10/701,140 claims the first surface is a bottom surface and the second surface is a top surface. Jiang et al 10/701,140 claims the second coating is a polymeric material and first coating is a surface is a coating

Art Unit: 1734

selected from the group consisting of any one or more of tungsten, tungsten carbide, tungsten nitride, nickel, and nickel alloy in any combination. Jiang et al 10/701,140 claims first coating is a surface is a coating selected from the group consisting of any one or more of tungsten, tungsten carbide, tungsten nitride, nickel, and nickel alloy in any combination which reads on the coating claimed by applicant thereby inherently providing the function of promoting the adhesive running onto the substrate. Jiang et al 10/701,140 stencil is capable of being used as a semiconductor die stencil since it teaches every element of the apparatus/stencil. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 9-14 and 40-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of U.S. Patent No. 6,607,599 (Jiang et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because Jiang et al claims a semiconductor die stencil to assist in application of a printable adhesive in a desired pattern onto a semiconductor die comprising: a sheet of material or stencil pattern, the sheet having a top surface and a bottom surface; a plurality of apertures in the sheet of

material defining a desired pattern for application of the printable adhesive; and a coating applied to the bottom surface of the sheet to retard spreading of the printable adhesive onto the bottom surface of the sheet. Jiang et al claims that the sheet of material is impervious to the adhesive and claims stencil or sheet of material is stainless steel. Jiang et al is silent to the coating being applied to the bottom of the sheet in a manner so as to obstruct of the flow of printable adhesive through the apertures onto the die and thereby reads on the claimed negative limitation of coating the sheet of material without obstruction of the adhesive through the apertures of the sheet. Jiang et al claims both the coating and the material have a surface tension, the surface tension of the coating being less than the surface tension of the material. Thus claims 9-12 and 46-47 are obvious over Jiang et al. With respect to claims 41, 43, 48-49, Jiang et al claims the surface tension of the coating, a polymeric material – polytetrafluoroethylene, is at least an order of magnitude less than the surface tension of the material which is claimed as stainless steel. With respect to claim 13, Jiang et al claims the side surface of the stencil are coated with one material and the bottom surface of the stencil is coated with another different material such that surface tension of the bottom surface relative to the side surface is within the scope of the claim. With respect to claims 40 and 42, Jiang et al claims the top surface of the stencil is coated with a coating material within the scope of the claim. With respect to claim 14, 44, 45 and 50-52, Jiang et al claims a semiconductor die stencil having a sheet of material or stencil pattern, the sheet having a top surface and a bottom surface, the first surface having a surface tension greater than a surface tension of the second surface to promote adhesive

Art Unit: 1734

running onto a semiconductor die; a plurality of apertures in the sheet of material defining a desired pattern for application of the printable adhesive. Jiang et al claims a semiconductor die stencil having a second surface is polymeric and first surface is coating within the scope of the claims

Claims 9-14 and 40-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,641,669 (Jiang et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because Jiang et al claims a stencil/screen/pattern to assist in application of a printable adhesive in a desired pattern onto a substrate comprising: a sheet of material or stencil pattern, the sheet or pattern having a top surface and a bottom surface; a plurality of apertures in the sheet of material defining a desired pattern for application of the printable adhesive; and a polymeric coating applied to the bottom surface of the sheet to retard spreading of the printable adhesive onto the bottom surface of the sheet. Jiang et al claims both the coating and the material have a surface tension, the surface tension of the coating being less than the surface tension of the material such as set forth in claims 9-12, 41, 43, 46-47 and 49. Jiang et al fails to claim that the sheet of material is impervious to the adhesive but the claimed stencil or sheet of material which is stainless steel is impervious to adhesive. Jiang et al is silent to the coating being applied to the bottom of the sheet in a manner so as to obstruct of the flow of printable adhesive through the apertures onto the die and thereby reads on the claimed negative limitation of coating the sheet of material without obstruction of the adhesive through the apertures of the

sheet. Further with respect to claim 14, 40, 42, 44-45 and 50-52, Jiang et al claims the stencil is further comprised of a layer to promote spreading of the printable material and the layer is selected from the group consisting of one of tungsten, tungsten carbide, tungsten nitride. Jiang et al is capable of its end use as a semiconductor stencil since it claims every structural element of the claimed stencil. With respect to claim 48, Jiang et al claims the surface tension of the coating which is claimed as being polytetrafluoroethylene is at least an order of magnitude less than the surface tension of the material which is claimed as stainless steel.

Claims 9-14 and 40-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-77 of U.S. Patent No. 6,669,781 (Jiang et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because Jiang et al claims a stencil/screen/pattern to assist in application of a printable adhesive in a desired pattern onto a substrate comprising: a sheet of material or stencil pattern, the sheet or pattern having a top surface and a bottom surface; a plurality of apertures in the sheet of material defining a desired pattern for application of the printable adhesive; and a polymeric coating applied to the bottom surface of the sheet to retard spreading of the printable adhesive onto the bottom surface of the sheet. Jiang et al claims both the coating and the material have a surface tension, the surface tension of the coating being less than the surface tension of the material such as set forth in claims 9-12, 41, 43, 46-47 and 49. Jiang et al fails to claim that the sheet of material is impervious to the adhesive but the claimed stencil or sheet of material which is stainless steel is

impervious to adhesive. Jiang et al is silent to the coating being applied to the bottom of the sheet in a manner so as to obstruct of the flow of printable adhesive through the apertures onto the die and thereby reads on the claimed negative limitation of coating the sheet of material without obstruction of the adhesive through the apertures of the sheet. Further with respect to claim 13-14, 40, 42, 44-45 and 50-52, Jiang et al claims the stencil is further comprised of a coating layer to promote spreading of the printable material applied to the top surface and side walls of the sheet of material and the layer is selected from the group consisting of one of tungsten, tungsten carbide, tungsten nitride. Jiang et al is capable of its end use as a semiconductor stencil as set forth in claims 9-14, 40-47 and 49-52 since it claims every structural element of the claimed stencil. With respect to claim 48, Jiang et al claims the surface tension of the coating which is claimed as being polytetrafluoroethylene is at least an order of magnitude less than the surface tension of the material which is claimed as stainless steel.

Claims 9-13 and 40-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,599,365 (Jiang et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because Jiang et al claims a semiconductor stencil/screen/pattern to assist in application of a printable adhesive in a desired pattern onto a substrate comprising: a sheet of material or stencil pattern, the sheet or pattern having a top surface and a bottom surface; a plurality of apertures in the sheet of material defining a desired pattern for application of the printable adhesive; and a polymeric coating applied to the bottom surface of the sheet to retard spreading

Art Unit: 1734

of the printable adhesive onto the bottom surface of the sheet. Jiang et al claims both the coating and the material have a surface tension, the surface tension of the coating being less than the surface tension of the material such as set forth in claims 9-12, 41, 43, 46-47 and 49. Jiang et al fails to claim that the sheet of material is impervious to the adhesive but the claimed stencil or sheet of material which is stainless steel is impervious to adhesive. Jiang et al is silent to the coating being applied to the bottom of the sheet in a manner so as to obstruct of the flow of printable adhesive through the apertures onto the die and thereby reads on the claimed negative limitation of coating the sheet of material without obstruction of the adhesive through the apertures of the sheet. Further with respect to claim 13-14, 40, 42, 44-45 and 50-52, Jiang et al claims the stencil is further comprised of a coating layer to promote spreading of the printable material applied to the top surface and side walls of the sheet of material and the layer is selected from the group consisting of one of tungsten, tungsten carbide, tungsten nitride. Jiang et al is capable of its end use as a semiconductor stencil as set forth in claims 9-14, 40-47 and 49-52 since it claims every structural element of the claimed stencil. With respect to claim 48, Jiang et al claims the surface tension of the polymeric coating is known to exhibit a surface tension having at least an order of magnitude less than the surface tension of the material which is claimed as stainless steel as disclosed by applicant in the specification.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1734

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pryor et al.

Pryor et al teaches a die stencil to assist in application of a printable material in a desired pattern onto a substrate comprising: a sheet of aluminum material which is impervious to a printable material applied thereto; a plurality of apertures in the sheet of material defining a desired pattern for application of the printable material; and a coating applied to at least one top or one bottom surface of the sheet to retard spreading of the printable material onto the at least one top or one bottom surface of the sheet. Pryor et al is silent as to the obstruction of the flow of printable material through the apertures

and thereby reads negative limitation that the material flows without obstruction of the flow of printable material through the apertures. Pryor et al teaches the coating is a polymeric material which within the scope of claim 49, specifically tetrafluoroethylene which is identical to that disclosed applicant at page 9 lines 12-22, and the material of construction of the sheet of material is within scope of that disclosed by applicant at page 9 lines 6-11 and thereby the coated layer on the Pryor stencil inherently provides the claimed function of retarding the spread of the printable adhesive. Pryor et al teaches the sheet of material is comprised of metal but fails to teach that sheet of material is constructed from stainless steel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the Pryor et al stencil base 1 from stainless steel since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. Pryor et al is capable of the end use of being aligned above the semiconductor die and assisting in the application of a printable material or a printable adhesive material in a desired pattern onto a semiconductor die since it teaches every claimed element of the apparatus/die stencil set forth in claims 46-49.

Claims 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pryor et al in view of Hefele.

Pryor et al teaches a die stencil to assist in application of a printable material in a desired pattern onto a substrate comprising: a sheet of aluminum material which is impervious to a printable material applied thereto; a plurality of apertures in the sheet of

material defining a desired pattern for application of the printable material; and a coating applied to at least one top or one bottom surface of the sheet to retard spreading of the printable material onto the at least one top or one bottom surface of the sheet. Pryor et al is silent as to the obstruction of the flow of printable material through the apertures and thereby reads negative limitation that the material flows without obstruction of the flow of printable material through the apertures. Pryor et al teaches the coating is a polymeric material which within the scope of claim 49, specifically tetrafluoroethylene which is identical to that disclosed applicant at page 9 lines 12-22, and the material of construction of the sheet of material is within scope of that disclosed by applicant at page 9 lines 6-11 and thereby the coated layer on the Pryor stencil inherently provides the claimed function of retarding the spread of the printable adhesive. Pryor et al teaches the sheet of material is comprised of metal but fails to teach that sheet of material is constructed from stainless steel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the Pryor et al stencil base 1 from stainless steel since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. In any event, it would have been obvious to modify the Pryor et al by using another known material of construction for its stencil sheet material, stainless steel, such as taught by Hefele for the known advantages of stainless steel – good corrosion resistance. Further, Pryor et al is capable of the end use of being aligned above the semiconductor die and assisting in the application of a printable material or a printable

adhesive material in a desired pattern onto a semiconductor die since it teaches every claimed element of the apparatus/die stencil set forth in claims 46-49.

Claims 9-14 and 40-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Caincross et al 5,447,757.

Caincross et al teaches a stencil/device/apparatus as disclosed in Example 3 which is comprised of the following elements: a top surface, a bottom surface, and one or more side surfaces. Caincross et al bottom surface having a surface tension defined by the polymeric edge and the surface tension of the polymeric edge is less than a surface tension of the top surface and less than a surface tension of the side surfaces defined in part by the silver screen which can be plated using a variety of material including nickel (see column 7 lines 39-45). Cairncross et al stencil is capable of being used as a semiconductor die stencil since Caincross et al teaches each of the structural elements of the claimed stencil/device/apparatus. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus every element of the stencil/device/apparatus is taught by Caincross et al. With respect to claims 40-41, Caincross et al teaches a top surface within scope of claim 40 (nickel coating on the silver screen) and bottom surface which is a polymeric material. With respect to claim 14, Caincross et al teaches the first surface having a

nickel coating which is within the scope of the material claimed by applicant thereby inherently providing the function of promoting the flow of adhesive onto the substrate. With respect to claims 44-45, the same rejection applied to claims 40-41 is applied here. With respect to claim 10-13, the same rejection applied to claim 9 is applied here. The surface tension of the polymeric ledge on the Cairncross et al is less than the nickel top surface of the nickel plated silver screen thereby retarding flow of adhesive relative to the flow of adhesive on the nickel surface of the nickel plated silver screen. Note the screen has a thickness so as to define side surfaces and these side surfaces are coated with a plated layer of nickel. With respect to claims 42-43, the same rejection applied to claims 40-41 is applied here.

Claims 9,14,40,45 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al 4,803,110 in view of Hefele.

Ahn et al teaches an apparatus/device/composite mask or stencil which is a perforated sheet of material having a top surface and bottom surface and one or more side surfaces as shown in Figures 2-3. Ahn et al teaches that the stencil layer of the composite stencil or mask is placed against a ceramic base for applying a pattern thereon and the paste is extruded through the mesh layer and then through the openings 38 and 40 of the stencil layer. Ahn et al teaches at column 4 lines nickel coating surfaces of the metal mask that come in contact with paste material to improve the resistance of a chemical reaction between the composite mask or stencil and the paste. Ahn et al fails to teach the bottom surface of his composite mask or stencil is not coated with a protective coating. However, Hefele teaches at column 2 line 64 to

Art Unit: 1734

column 3 line 2 a composite mask or stencil for use in applying a paste to a substrate wherein top surface and side wall surfaces of each aperture is provided with a wear-resistant coating. Hefele also teaches that the wear-resistant coating is "preferably" applied to the bottom surface of the composite mask or stencil which infers to one skilled in the art that wear resistance coating to the bottom surface is not required and not needed dependent on surface characteristics of the substrate against which the bottom surface of the stencil or mask is placed. Therefore, it would have been obvious to provide the Ahn et al chemical reaction resistant coating (nickel) on top surface and side wall surfaces of each aperture of its composite stencil or mask but not on its bottom surface since the Ahn et al bottom surface is placed against the substrate and is not in direct contact with the paste and especially since Hefele teaches a coating provided to increase wear resistance of the stencil may be limited to the top surface and side wall surfaces of each aperture and not needed on the bottom surface of the stencil or mask dependent on surface characteristics of the substrate against which the bottom surface is placed. The recitation of the intended end use of composite mask or stencil as a semiconductor die stencil does not structurally further limit the claimed device/apparatus over the above recited combination of references since Ahn et al teaches each of the structural elements of the claimed apparatus/device/ composite mask or stencil. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does."

Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus Ahn et al teaches each of the structural elements of the apparatus/device as set forth in claims 9 and 40. With respect to claims 14, 45 and 50-52, Ahn et al teaches a stencil having at least a first surface and a second surface. The Ahn et al's first surface is comprised of nickel plating layer which is within the scope of the material disclosed and claimed by applicant thereby the nickel plating layer inherently providing the function of promoting adhesive running onto a semiconductor die. Ahn et al's first surface of nickel plating has a surface tension which is greater than the known surface tension of the second surface of the stencil which is copper. Thus Ahn et al teaches each of the structural elements of the apparatus/device as set forth in claims 14, 45 and 50-52.

Claims 9-13, 41, 43 and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dreyfus in view of Cahne 3,008,601.

Dreyfus teaches an apparatus/device which is a perforated sheet of material having a top surface and bottom surface and one or more side surfaces. Dreyfus apparatus/device is capable of the end use as a stencil since it has the structure required for a stencil, that is, an impervious sheet of material perforated with a pattern of openings through which a material can be forced. Dreyfus teaches the material of construction of the perforated sheet includes a wide variety of metal materials including stainless steel, aluminum and the like. Dreyfus fails to teach the surface tension of one surface, bottom surface, is less than the surface tension of other surfaces, top surface and the side surfaces. However, Cahne teaches an apparatus/device which is

comprised of a sheet of metal material having a polymer coating applied only on one surface. Cahne teaches providing a coating of polytetrafluoroethylene on the sheet of metal material which is identical to the coating disclosed by applicant thereby inherently providing the claimed property of retarding the spread of printable adhesive. Cahne fails to teach the sheet of material is perforated so to act as a stencil. However, it would have been obvious to modify the Dreyfus perforated sheet of metal material, stainless steel or aluminum, to provide a coating only on one side since Cahne teaches providing a coating of polytetrafluoroethylene on a metal material for used in high temperature environments, aluminum, and provide the coating disclosed by applicant only on one side of the sheet of material such as a bottom or lower side 12 as shown in Figure 5 to prevent sticking of material being treated to the recited surface with the surface tension of the coated surface being less than the surface tension of other surfaces, top surface and the side surfaces. The recitation of the intended end use of perforated sheet coated on one side with the coating of a polymeric material, polytetrafluoroethylene, as a semiconductor die stencil does not structurally further limit the claimed device/apparatus over the above recited combination of references since Dreyfus in view of Cahne and Johnson teaches each of the structural elements of the claimed apparatus/device. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d

Art Unit: 1734

1525, 1528 (Fed. Cir. 1990). Thus claims 9-13, 41 and 43 are obvious over the above recited references. With respect to claims 46-49, the same rejection applied to claims 9-13, 41 and 43. Cahne fails to teach the coating of polytetrafluoroethylene is provided on stainless sheet. However, it would have been obvious given the modified Dreyfus perforated sheet of metal material with the Cahne polymeric coating applied onto at least one side of the sheet of material, at least one top or bottom surface, to construct the perforated sheet of material from another known material use in such high temperature environments such as stainless steel for the known advantages of stainless steel which include high corrosion resistance.

Claims 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 59-76868 in view of Hefele.

Japan '868 teaches a die stencil to assist in application of a printable material in a desired pattern onto a substrate comprising: a sheet of metal material which is impervious to a printable material or adhesive applied thereto; a plurality of apertures in the sheet of material defining a desired pattern for application of the printable material; and a coating applied to surfaces of the sheet of material including bottom surface of the sheet to retard spreading of the printable material onto surfaces of the stencil including the bottom surface of the sheet. Japan '868 is silent as to the obstruction of the flow of printable material through the apertures and thereby reads on the negative limitation that the material flows without obstruction of the flow of printable material through the apertures. Japan '868 teaches the coating is a polymeric material which within the scope of claims 8 and 11, specifically tetrafluoroethylene which is identical to

that disclosed applicant at page 9 lines 12-22, and the material of construction of the sheet of material is within scope of that disclosed by applicant at page 9 lines 6-11 and thereby inherently reads on the claimed limitations of the coating and the sheet of metal material (surface tension properties) such as set forth in claims 46-49. Japan '868 teaches the sheet of material is comprised of metal but fails to teach that sheet of material is constructed from stainless steel or a stainless steel semiconductor die stencil sheet. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the stencil base 1 from stainless steel since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice and especially since Hefele teaches the use of a stainless steel as the stencil base 1 in a semiconductor environment for a coated pattern stencil for the obvious advantage of stainless steel- good corrosion resistance. In re Leshin, 125 USPQ 416. Japan '868 is capable of the end use of being aligned above the semiconductor die and capable of the end use of assisting in the application of a printable material or a printable adhesive material in a desired pattern onto a semiconductor die since it teaches every claimed element of the apparatus/die stencil as set forth in claims 46-49.

Applicant's arguments filed 9/21/2006 have been fully considered but they are not persuasive.

Applicant's argument that Hefele fails to teach coating some but not all surfaces is found to be non-persuasive. In the last office action, Hefele was applied to teach that it is known to use a sheet of perforated stainless steel as the base in manufacturing a

coated stencil for the obvious advantage of stainless steel –good corrosion resistance (see page 17 lines 6-9 of the last office action). Note the recitation in claim 46 by applicant that the stainless steel is a stainless steel semiconductor die stencil sheet does not structurally further limit the apparatus over Hefele since the Hefele stainless steel is capable of being used in a semiconductor environment. In any event, Hefele teaches at column 2 line 64 to column 3 line 2 a composite mask or stencil for use in applying a paste to a substrate wherein top surface and side wall surfaces of each aperture is provided with a wear-resistant coating. Hefele also teaches that the wear-resistant coating is “preferably” applied to the bottom surface of the composite mask or stencil which infers to one skilled in the art that, for purposes of increasing the wear resistance of the mask or stencil, coating to the bottom surface is not required and not needed dependent on surface characteristics of the substrate against which the bottom surface of the stencil or mask is placed.

Applicant's argument that Pryor et al fails to teach a coating applied to the bottom surface of the surface of the sheet to retard spreading of the printable adhesive onto the bottom surface of the sheet is found to be non-persuasive. In contrast to applicant's arguments, the originally filed specification indicates at page 8 line 25 to page 9 line 6 indicates that the coating applied to the patterned metal or metal alloy base to retard spreading of the adhesive material is polytetrafluororethylene. Pryor et al also teaches a metal stencil coated with TEFLON or polytetrafluororethylene such that the polytetrafluororethylene layer is in contact with coating applied through the stencil and therefore the TELFON coated layer of the Pryor stencil would inherently provide the

claimed function of retarding the spread of the printable adhesive. See MPEP 2112.01 which states that when the structure in a reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent.

Applicant's argument that Cairncross fails to teach the side surfaces of the apertures have a first surface tension and bottom surface of the stencil have a second surface tension is found to be non-persuasive since Cairncross teaches in process of manufacturing the stencil the step of electroplating the screen pattern with nickel and the screen pattern has a thickness so as to define side surfaces and these side surfaces are also coated with a nickel layer. It is noted by the examiner that only claim 9,13 and 40-41 of claims 9-14 and 40-45 rejected over Cairncross require a side surface.

Applicant's argument that, unlike Masham, Dreyfus perforated plate is incapable of providing the pattern required to apply adhesive to a semiconductor die is found to be non-persuasive since it is not commensurate in scope with claim limitations with claims directed to a desired pattern which is not limited to one for production of semiconductor pattern as argued by applicant.

Applicant's argument that Dreyfus and Cahne are non-analogous art is found to be non-persuasive. Applicant's claims are directed to a sheet of material having a top surface and bottom surface, the sheet of material being constructed from a material which is impervious to a printable coating which is an adhesive applied thereto, a plurality of apertures in a sheet of material defining a desired pattern and a coating applied only to the bottom surface of the sheet to retard spreading of printable coating

which is an adhesive. Contrary to applicant's arguments, it is deemed that the combination of Dreyfus and Cahne teaches every positively claimed element of the apparatus and therefore deemed to be analogous art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brenda A. Lamb whose telephone number is (571) 272-1231. The examiner can normally be reached on Monday-Tuesday and Thursday-Friday with alternate Wednesdays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla, can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)


Brenda A Lamb
Examiner
Art Unit 1734